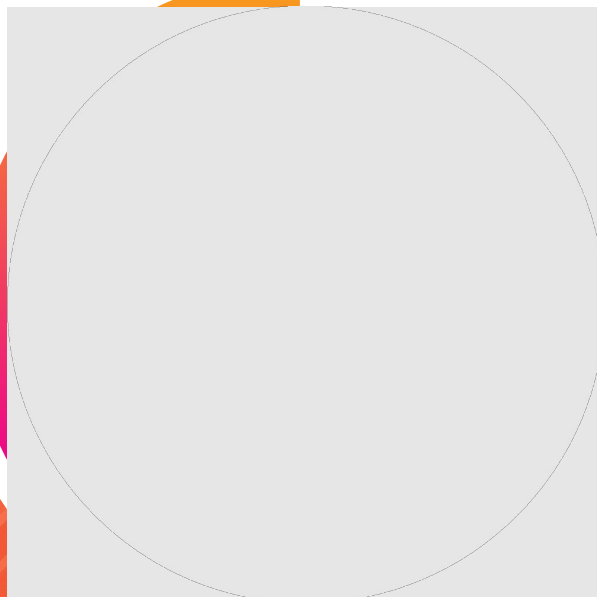




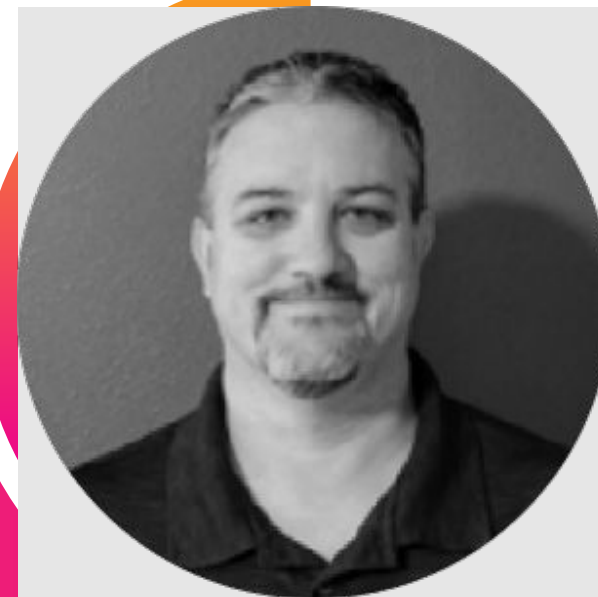
Case Study:

Call Center Agent Performance Monitoring



Jeremy Lemley

Lead Operations Analyst | CenturyLink



Russ White

Operations Analyst II | CenturyLink

Forward-Looking Statements



During the course of this presentation, we may make forward-looking statements regarding future events or plans of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results may differ materially. The forward-looking statements made in the this presentation are being made as of the time and date of its live presentation. If reviewed after its live presentation, it may not contain current or accurate information. We do not assume any obligation to update any forward-looking statements made herein.

In addition, any information about our roadmap outlines our general product direction and is subject to change at any time without notice. It is for informational purposes only, and shall not be incorporated into any contract or other commitment. Splunk undertakes no obligation either to develop the features or functionalities described or to include any such feature or functionality in a future release.

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Today's Discussion

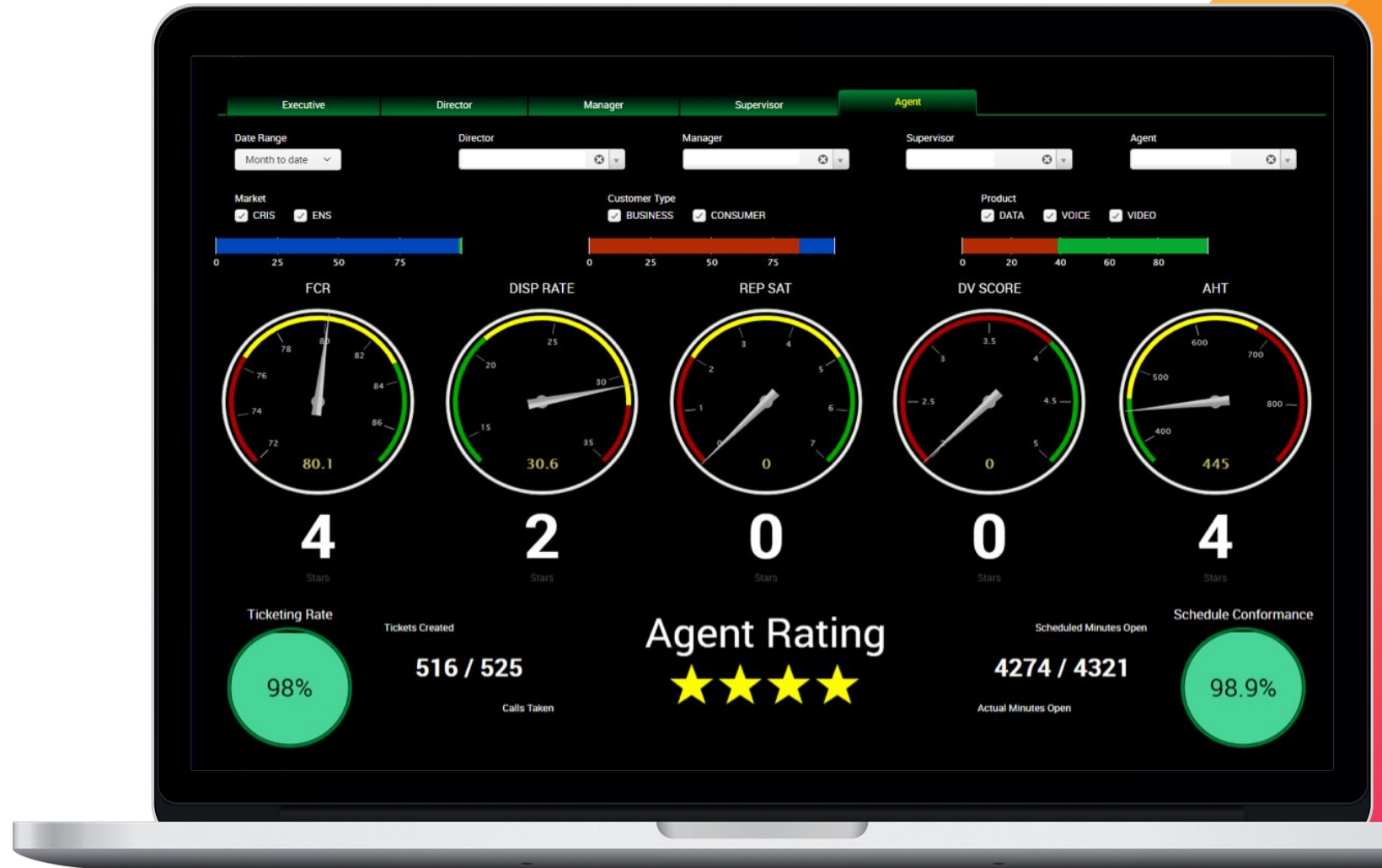
Call Center 101

Our Journey

Data Prep Learnings

Under the Hood

Reaping the Benefits





About Call Centers

Call Center Terminology

Call centers have their own language





Call Center Functions

Making sense of it all

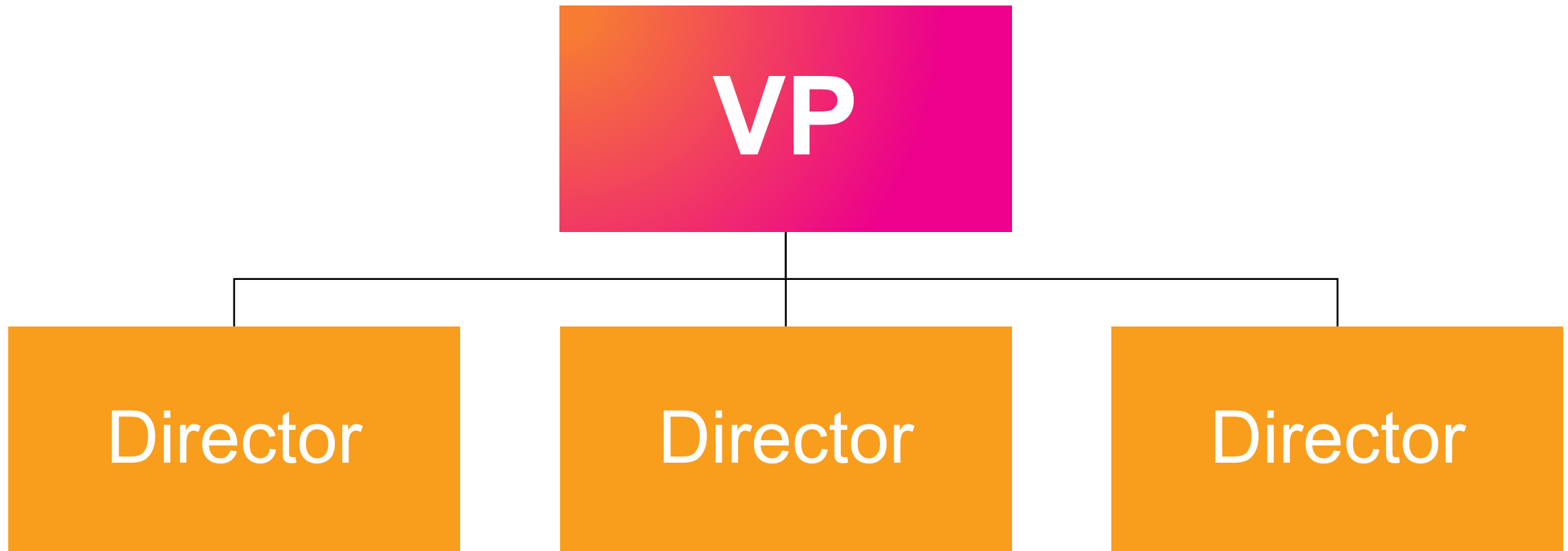
Higher is Better:

- Representative Satisfaction (Rep Sat)
- Net Promoter Score (NPS)
- QA
- First Contact Resolution (FCR)

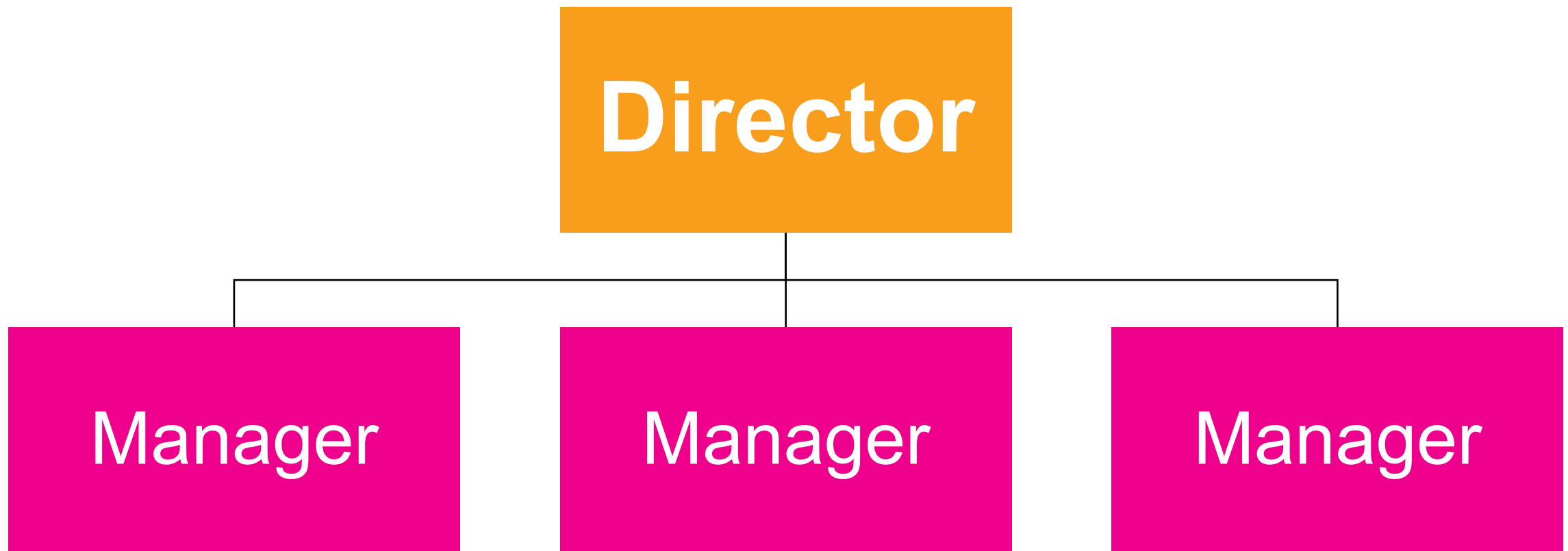
Lower is Better:

- Average Handle Time (AHT)
- Dispatch Rate
- Average Speed of Answer (ASA)

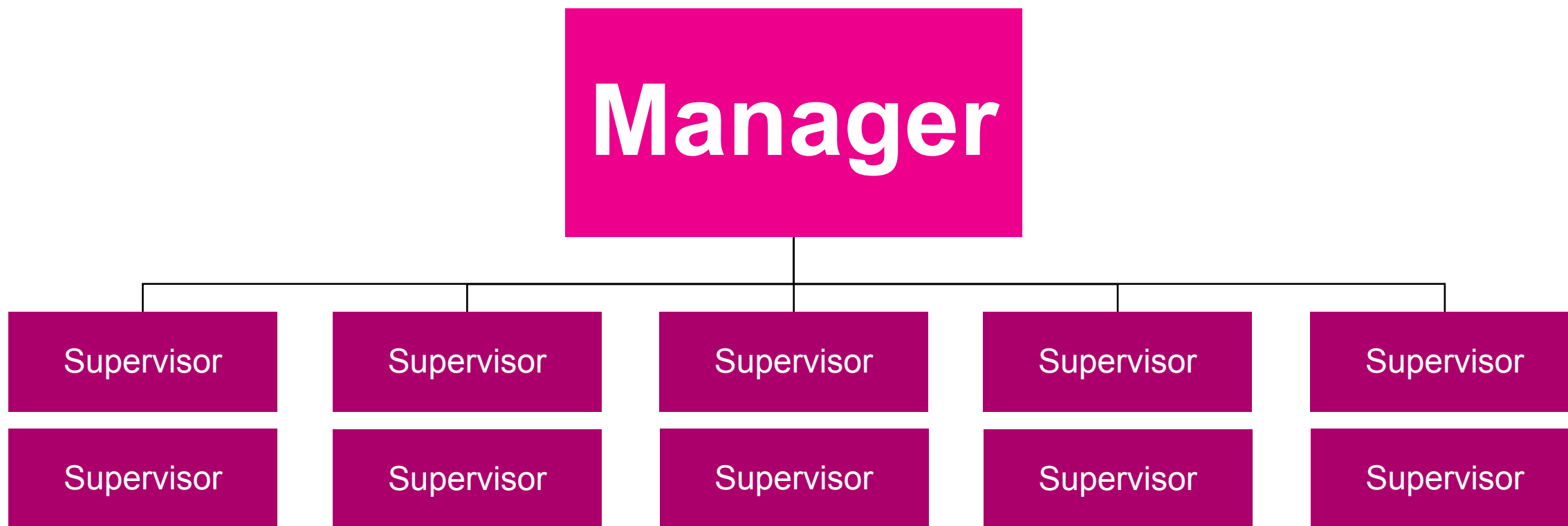
Hierarchy: VP



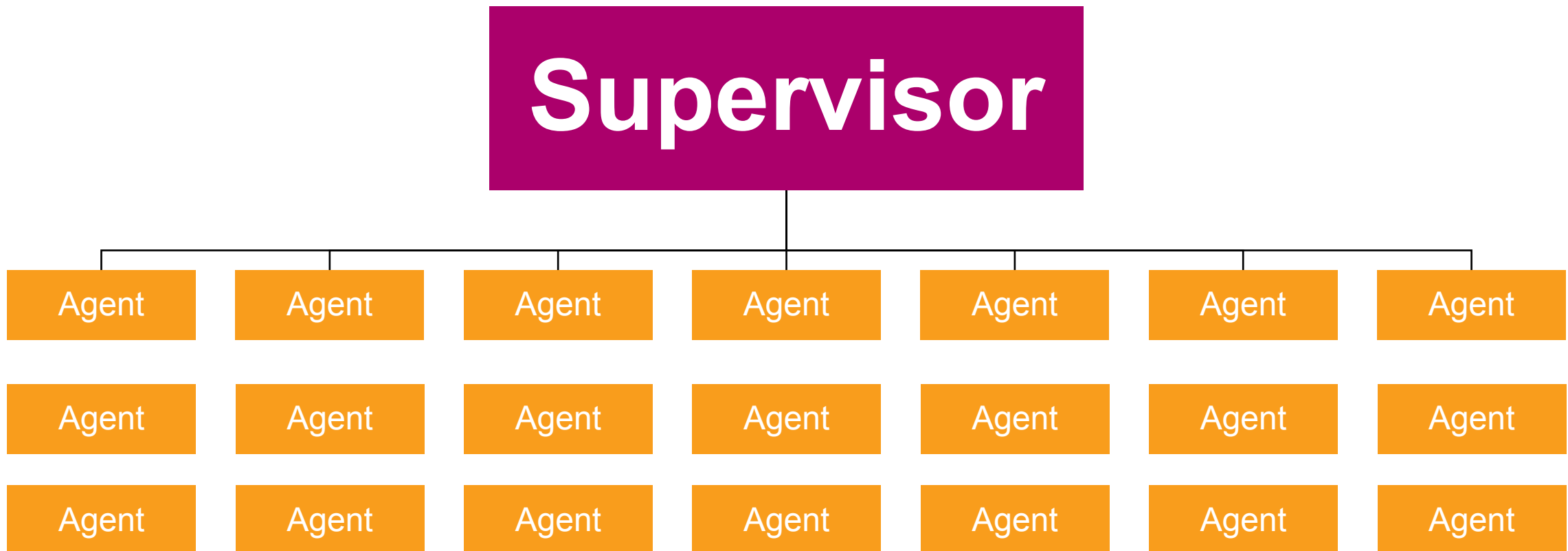
Hierarchy: Director



Hierarchy: Manager



Hierarchy: Supervisor





How We Got There

Where We Started

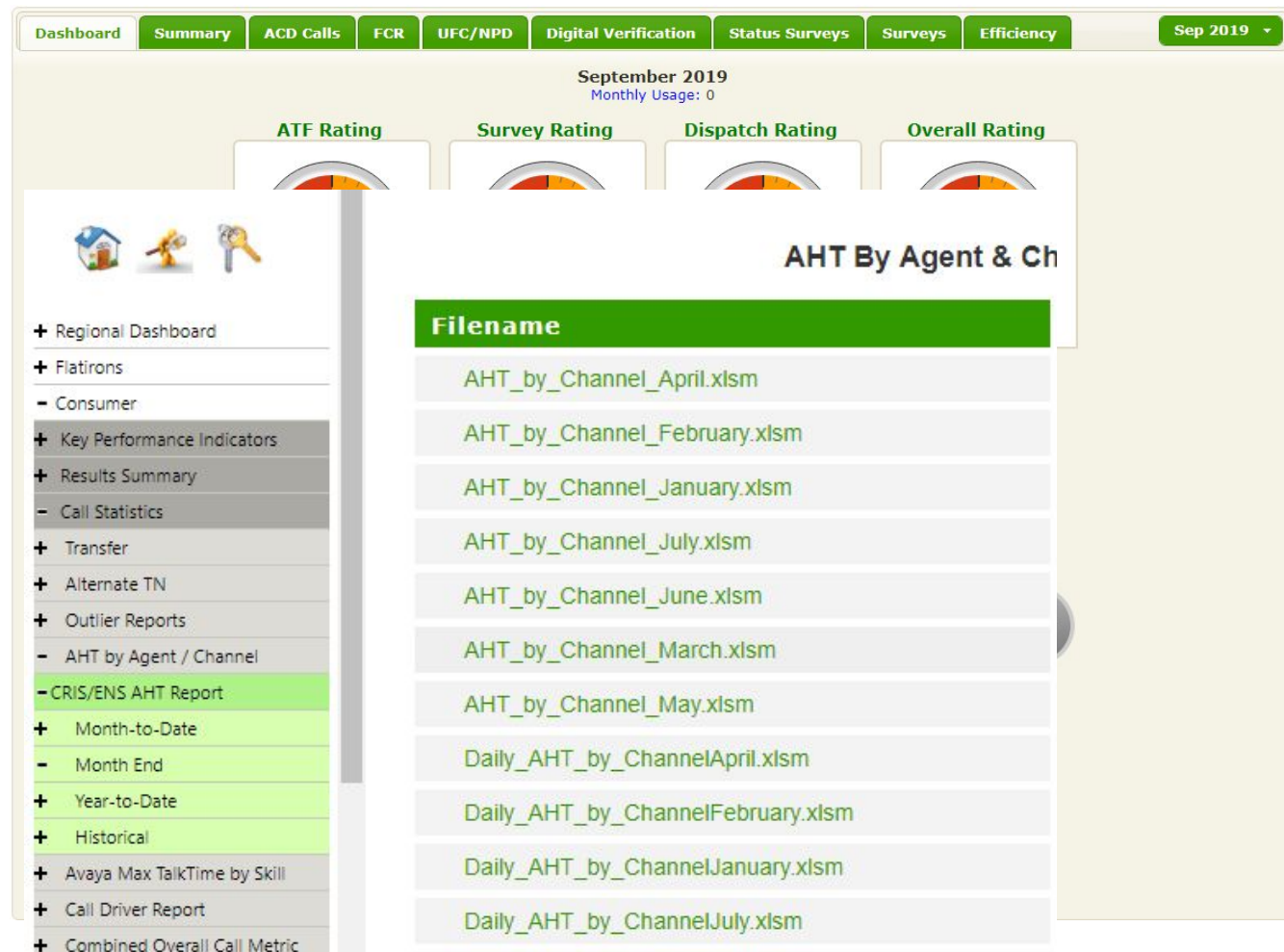
What came before Splunk

Spreadsheets

- Lots and lots of spreadsheets...
- Spreadsheet repository

Home-grown web applications

- Scorecard written in PHP/HTML
- ASPX-based system



Row Labels					Values										
Manager	Supervisor	EMPLOYEE_NAME	CHANNEL	SKILL_NAME	Calls	AHT	ACWT	Unprod ACW	WRAP Out	In Talk Time	Total Wrap	Out Wrap	Hold	Abn Calls	
05-2019					434301	621	118		110	8	195586074	51278097	3511987	5024	
					57129	515	30		28	2	25084876	1703424	105659	858	
					10821	414	32		31	1	3505759	345806	11793	238	
					444	465	8		7	1	170495	3526	298	9	
REPAIR CRIS BUSINESS DATA					97	484	6		6	0	38426	552	0	1	
					97	484	6		6	0	38426	552	0	1	
REPAIR CRIS CONSUMER DATA					93	613	13		13	0	46440	1210	0	2	
					12	300	0		0	0	2950	3	0	0	
					0						0	0	0	0	
					0						0	0	0	0	
					0						0	0	0	0	
					35	682	30		30	0	20163	1051	0	2	
					Issue Resolved	Issue Resolved	Rep Sat	Digital Verification			CODE3	RPT_CODE1	RPT_CODE2		
					Count	%	Count	Rating			Issue Resolved	Wireless	Setup/Credentia		
					1	100%	1	5.0			Issue Resolved	Wireless	Setup/Credentia		
					3	67%	2	5.0			Transfer/Refer	Connectivity	No Sync		
					1	100%	1	5.0	ll Phones		(null)	Phone Line	No Dial Tone -		
					1	100%	1	5.0			Transfer/Refer	Voice	Circuits		
					4	100%	4	5.0	Dispatch		Customer Education	Voice	Calling Feature		
					1	100%	1	5.0	stall for Customer		Transfer/Refer	Connectivity	Sync - Authent		
					6	100%	6	5.0			(null)	Subsequent	Update		
											Reschedule	Voice	Status Update -		
											Issue Resolved	Connectivity	Sync - Authent		
											Dispatch	Connectivity	Intermittent		
											Dispatch	Manager Escalation	Data		
											(null)	Subsequent	Status Only		
											Transfer/Refer	Wireless	Setup/Credentia		
											Transfer/Refer	Out of Scope	Misdirect		
											Customer Education	Voice	No Dial Tone		
											(null)	Non-Customer Call	No Caller On Li		
											Customer Notified	Status Update	Outage		
											Issue Resolved	Non-Customer Call	Other Internal		
											Issue Resolved	Wireless	Setup/Credentia		
											Customer Education	Voice	Cannot Make Cal		
											Customer Notified	Connectivity	Intermittent		

Date Ranges:

One

Two

Start Date:

08/01/2019

End Date:

08/25/2019

Time Units:

Hours

Format:

On

Off

Export Current Level for All Tabs

Load Status: Analysis Date: 08/25/2019

Performance

Data Calls

Combo Calls

Chats

Contacts

Rx

Dispatch

7 Day

1 Day

30 Day

Misc

Email

Name

CUID

Date Range

7 Day All In Repeats

*7 Day All In FCR

Ticketed All In %

7 Day Assisted Repeats

7 Day FCA

Assisted w/ Tns

7 Day All In Combo Repeats

7 Day All In FCCR

Ticketed All In Combo %

08/01/19 - 08/25/19

1349 (34.3%)

2579 (65.7%)

3928 (671.5%)

0 (0.0%)

118 (100.0%)

118

1798 (34.7%)

3377 (65.3%)

5175 (249.6%)

What We Needed

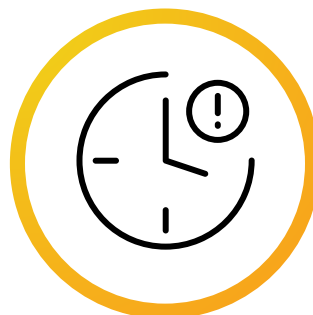
Support
3000+ Users



Visually
Appealing



Simple, Quick
and Real Time



People should
want to use it



Used by: Agents,
Supervisors,
Managers &
Execs



“If you want to succeed you should strike out on new paths, rather than travel the worn paths of accepted success.”

John D. Rockefeller

Review of Options

Splunk vs. Everything Else

Traditional Platforms

- Powerful Visualization Options
- Limited real-time capabilities
- User-based licensing models
- Huge learning curve

Custom-built Option

- Super-customizable
- Real-time is possible
- No licensing concerns
- Huge time commitment
- Requires significant skill and data set

Splunk

- Powerful Visualization Options
- Real-time data
- Licensing based on data ingestion
- Relatively short learning curve
- Good performance
- Quick turnaround (demo to delivery)

How We Got Management Buy-In

1. Design session with ALL end-users
2. Build a proof-of-concept
3. Communicate!

We Did it in Under 12 Months!

4/2018 – 5/2018

- Research KPI's
- Establish project team

8/2018

- KPI's finalized
- Design session

10/2018

- Completed first set of data prep
- Started building drilldown dashboards
- Delivered demo of Sup dash

12/2018

- Delivered demo to call center
- Summary index planning

2/2019

- Soft launch
- Finalized drilldown dashboards
- Additional indexes built

6/2018

- Outline structure
- Explore viz options
- Begin data prep

9/2018

- Started using Splunk
- Established DB links
- Built shell mockups

11/2018

- Completed second set of data prep
- ACD and Repeat indexes completed

1/2019

- Summary index built
- Additional data indexes built
- Started on Manager and Agent dash

3/2019

- Official release
- Bug fixes
- New features started

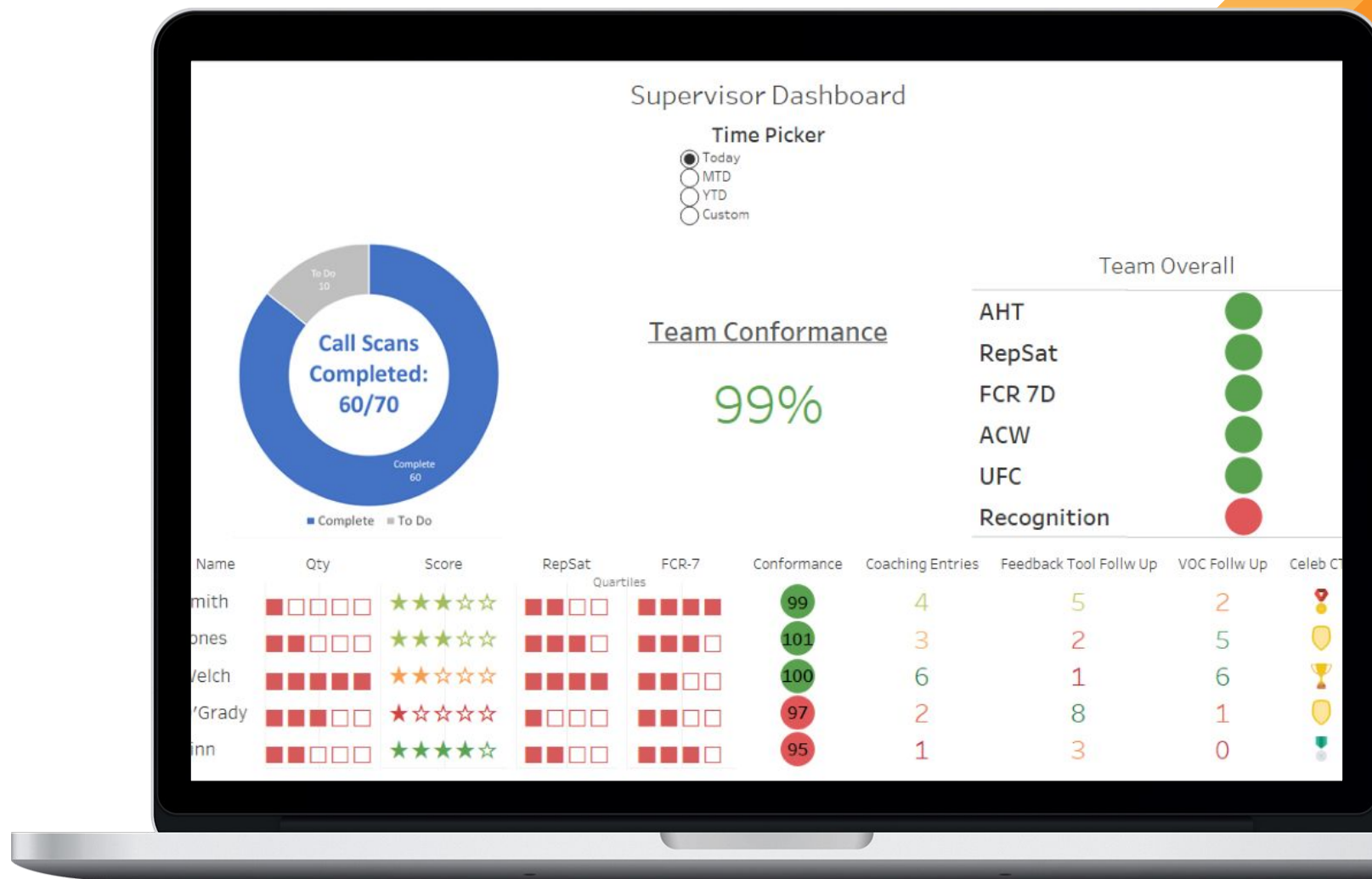
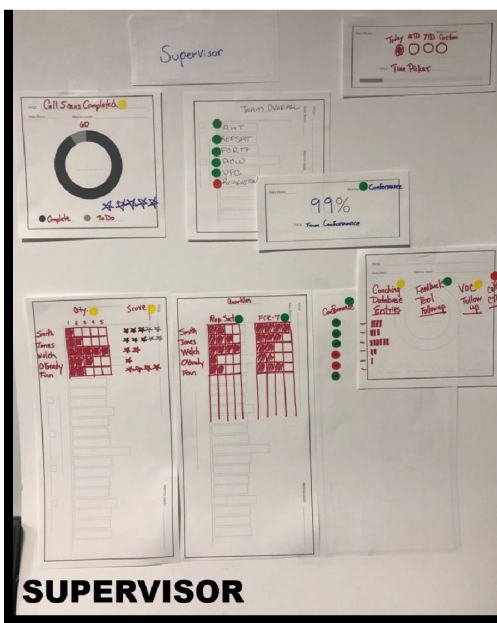


Arts and Crafts

“Just because you can
doesn’t mean you should.”

Everybody that knows better

Planning the Supervisor View





Executive

Director

Manager

Supervisor

Agent

Date Range

Previous month

Director

Manager

Supervisor

Market

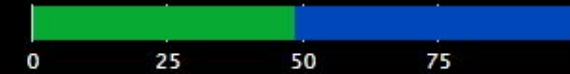
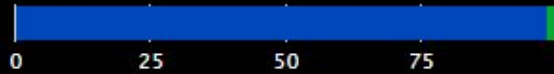
☒ CRIS ☒ ENS

Customer Type

☒ BUSINESS ☒ CONSUMER

Product

☒ DATA ☒ VOICE ☒ VIDEO



Call Scans



FCR-7 Day(%)

73.6%

DSP Rate(%)

28.4%

AHT(sec)

590

ACW(sec)

37

QA

2.9

In Conf (%)

76.9%

Rep Sat

NA

Open Feedback

1

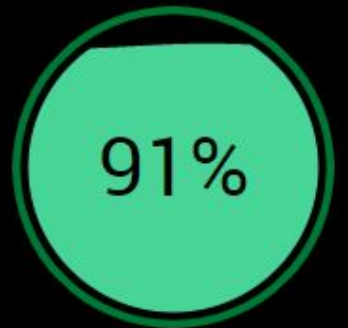
DV Ratio

4.1

NPD (%)

8.5%

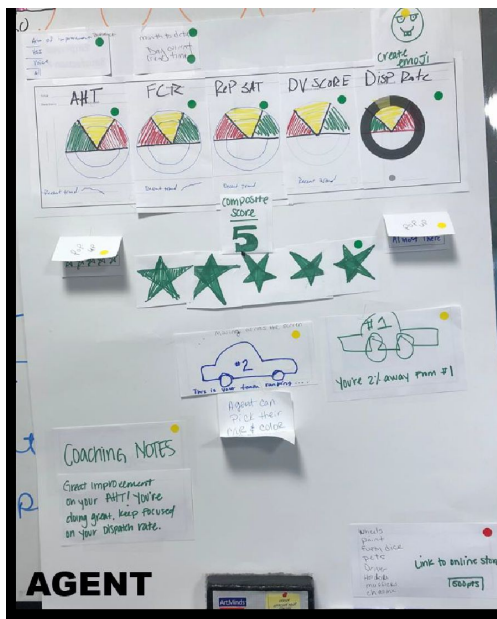
Ticketing Rate



“I’m already acclimated to
it,
no looking back!”

M.R. - Supervisor

Planning the Agents View





Debug Mode

- ☐ Enabled
☒ Disabled

[Refresh Dashboard](#) [Edit UI](#) [Edit XML](#)

Executive
Manager
Agent

Director
Supervisor

Date Range

Director

Manager

Supervisor

Agent

Market

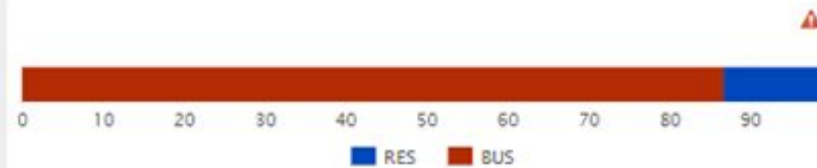
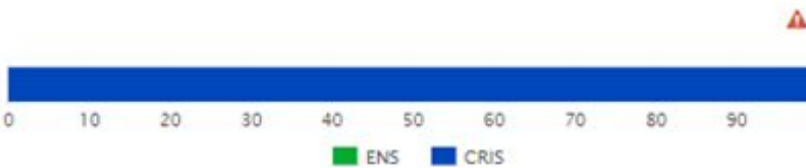
- ☒ CRIS
☒ ENS

Customer Type

- ☒ BUSINESS
☒ CONSUMER

Product

- ☒ DATA
☒ VOICE
☒ VIDEO



FCR



DISP RATE



REP SAT



DV SCORE



AHT



Debug Mode

☒ Enabled ☐ Disabled

Executive

Director

Manager

Supervisor

Agent

Date Range

Month to date

Director

Manager

Supervisor

Agent

Market

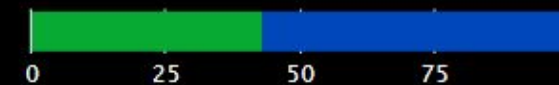
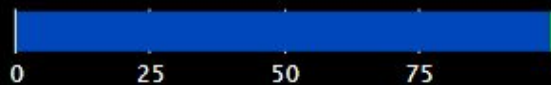
☒ CRIS ☒ ENS

Customer Type

☒ BUSINESS ☒ CONSUMER

Product

☒ DATA ☒ VOICE ☒ VIDEO



FCR

DISP RATE

REP SAT

DV SCORE

AHT





CenturyLink® Repair Metrics Dashboard

Mock Data Mode - Demo Use Only

SCREENING CONSULTANT
T1SARA

Agent

Date Range

☐ Yesterday ☐ Previous Week ☐ Previous Month ☐ Week to Date ☒ Month to Date

Market

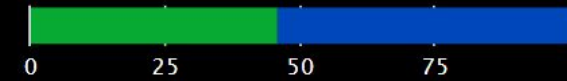
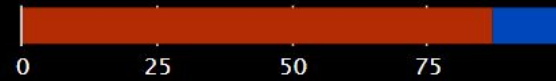
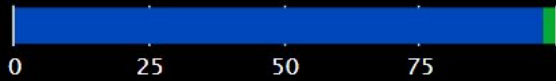
☒ CRIS ☒ ENS

Customer Type

☒ BUSINESS ☒ CONSUMER

Product

☒ DATA ☒ VOICE ☒ VIDEO



FCR



DISP RATE



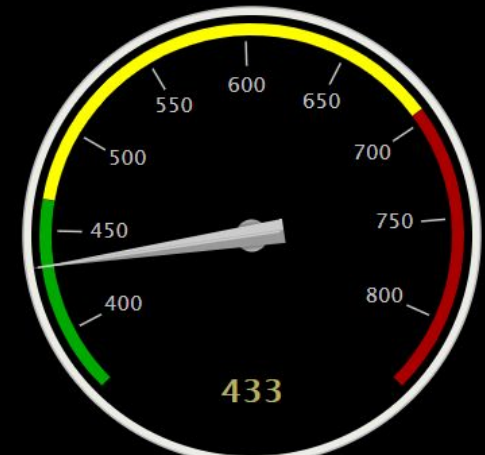
REP SAT



DV SCORE



AHT



Customer History

Date Range
Last 7 days

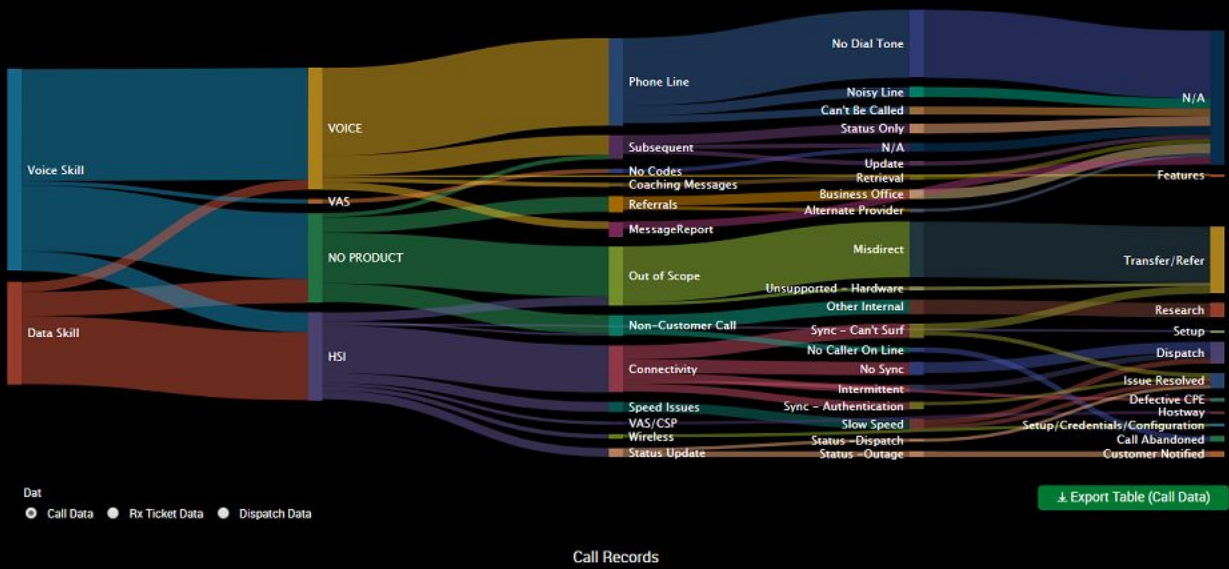
Customer's WTN, BTN, BAN, CBR, EMAIL OR RX#

CUID

Market
☒ CRIS ☒ ENS

Customer Type
☒ BUSINESS ☒ CONSUMER

Product
☒ DATA ☒ VOICE ☒ VIDEO ☒ NONE



AHT ACW

Date Range
Previous month

Director

Manager

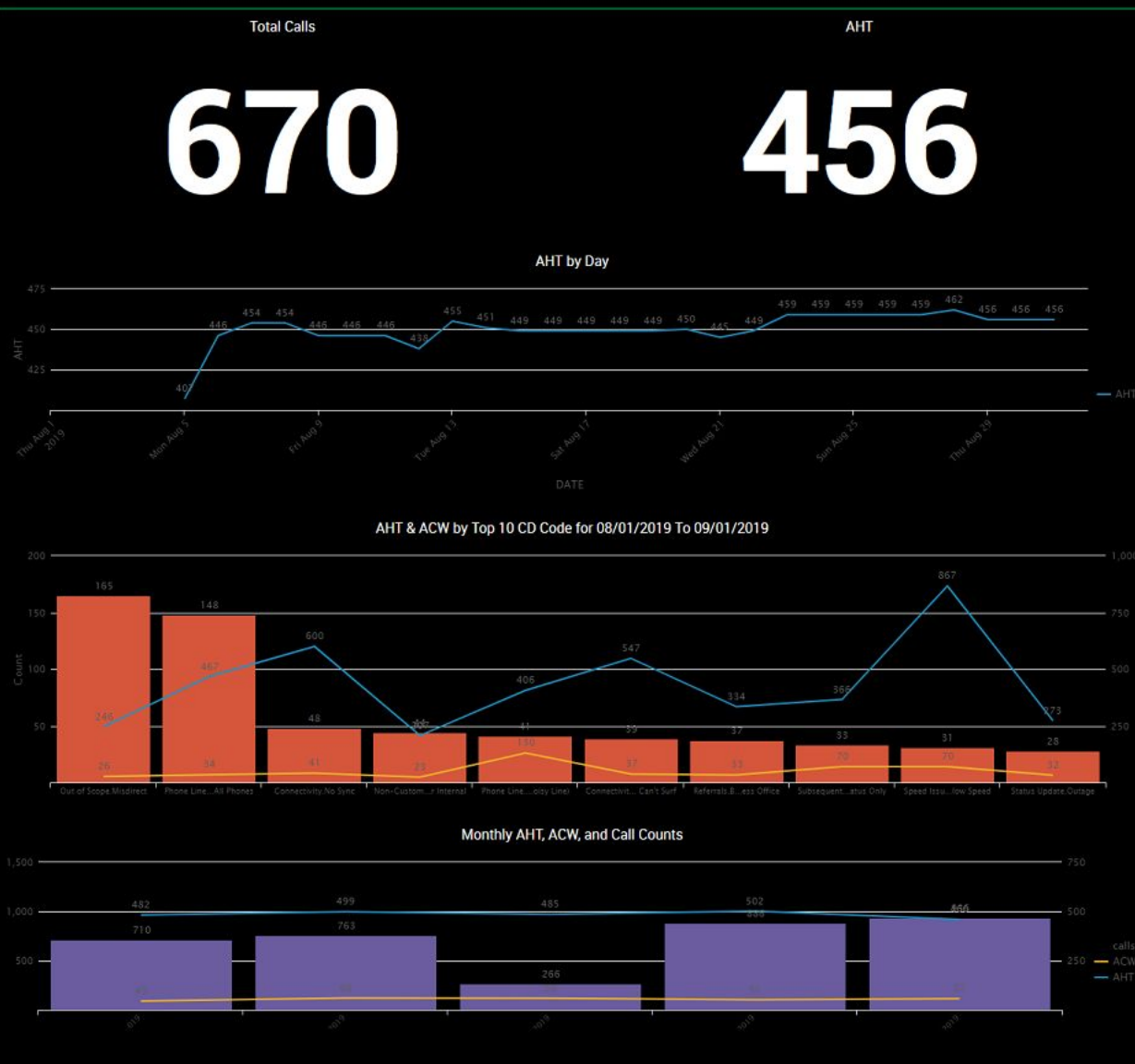
Supervisor

Agent

Market
☒ CRIS ☒ ENS

Customer Type
☒ BUSINESS ☒ CONSUMER

Product
☒ DATA ☒ VOICE ☒ VIDEO



“It’s great having access to everything at a glance on one screen. Then if they want to drill down, they can.”

L.A. - Supervisor



Debug Mode



Enabled



Disabled

Refresh Dashboard

Edit UI

Edit XML

Debugging Data

Environment:				App: CTL_it_svc_asr_repair	Dashboard: rmd
User:	CUID: sarabot	Position: UBER DEVELOPER	TabDefault: supv	Email: sarabot@centurylink.com	
Permissions:	SARA: True	AGENT: \$perm_agent\$	READ: \$perm_read\$	VENDOR: \$perm_vendor\$	
	AgentLevel: \$IsAgent\$	MgmtLevel: True	UberDev: 1	Tier: 0	
Tab Display:	ShowDrct: \$ShowDrct\$	ShowMngr: \$ShowMngr\$	ShowSupv: True	ShowAgnt: \$ShowAgnt\$	ExportDTTM: 010819-270819
Tab Inits:	Exec: \$InitExec\$	Drct: \$InitDrct\$	Mngr: \$InitMngr\$	Supv:	Agnt:
Export SIDs:	Exec: \$export_exedet_sid\$ \$export_exesida\$	Drct: \$export_dirdet_sid\$	Mngr: \$export_mgrdet_sid\$	Supv: \$export_supdet_sid\$	ExportDTTM: 010819-270819
TimePicker (Earliest):	Relative: @mon	Unix (Raw): 1564635600.000	CTime (Raw): 2019-08-01 00:00:00 CDT	Unix (Adj): 1564635600.000000	CTime (Adj): 2019-08-01 00:00:00 CDT
TimePicker (Latest):	Relative: now	Unix (Raw): 1566932707.000	CTime (Raw): 2019-08-27 14:05:07 CDT	Unix (Adj): 1566932707.000000	CTime (Adj): 2019-08-27 14:05:07 CDT
Hierarchy:	Director: \$cuid_drct\$	Manager: \$cuid_mngr\$	Supervisor: \$cuid_supv\$	Agent: \$cuid_agnt\$	
Inits:	Director: \$InitDrct\$	Manager: \$InitMngr\$	Supervisor:	Agent:	
Filters:	Market:	(market=CRIS OR market=ENS) / \$market_values\$			
	Cust Type:	(customer_type=BUS OR customer_type=RES) / \$custtype_values\$			
	Product:	(product=DATA OR product=VOICE OR product=VIDEO) / \$product_values\$			
Misc:	Star - Raw: \$star_raw\$	Star - Value: 0	:	:	



Preparing the Data

Where does it come from?



Automated Call Distribution (ACD)

- Nine Internal Centers and Eight Vendors

Surveys

- Email and Chat Vendors

Chats

Quality Assurance

Ticketing

Internal Feedback

Dispatches

Scheduling

- Four different systems

Other Internal Systems

Data Prep: Key Takeaways

1. Know your data, and what you want from it.
2. Rising Columns!
3. Get creative

.conf19

splunk[®]>

Code!

Time zones

////////////////////

Normalize Dashboard Timepicker to Central

```
| makeresults
| addinfo
| eval info_min_time=strptime(strftime(info_min_time, "%c.%6N America/Chicago"), "%c.%6N %Z"),
      info_max_time=strptime(strftime(info_max_time, "%c.%6N America/Chicago"), "%c.%6N %Z")
```

Normalize Data to Central

```
| eval from_tz=strftime(_time, "%Z"),
      to_tz="America/Chicago",
      from_t=strptime(strftime(_time, "%c.%6N " . from_tz), "%c.%6N %Z"),
      to_t=strptime(strftime(_time, "%c.%6N " . to_tz), "%c.%6N %Z"),
      _time=_time + (from_t-to_t)
```

```

103 <!--
104 Begin SECURITY Section.  Hey you!  Get off my lawn! *****
105 -->
106 <search id="sara_rmd_aht_roles">
107   <query>
108     | rest splunk_server=local /servicesNS/-/-/authentication/users
109     | eval sara=mvfind(roles,"a_svc_asr_repair_write"),
110         read=mvfind(roles,"a_svc_asr_repair_read"),
111         agent=mvfind(roles,"a_svc_asr_repair_agent_read"),
112         vendor=mvfind(roles,"a_svc_asr_repair_vendor_read")
113     | fields roles sara read agent vendor
114   </query>
115   <done></done>
140 </search>
141 <search id="sara_rmd_empdd">
142   <query>
143     | inputlookup rmd_employees
144     | search CUID=$env:user$ AND tier=1
145     | eval Job_Descr=if(isnull(Job_Descr)," ",Job_Descr)
146   </query>
147 </search>
148 <search id="sara_rmd_empl" base="sara_rmd_empdd"></search>
246 <search id="uberdev" base="sara_rmd_empl"></search>
259 <!--
260 End SECURITY Section.  I would have gotten away with it too if it weren't for you meddling kids!
261 -->

```

```

103 <!--
104 Begin SECURITY Section.  Hey you!  Get off my lawn! *****
105 -->
106 <search id="sara_rmd_aht_roles">
107   <query>
108     | rest splunk_server=local /servicesNS/-/-/authentication/users
109     | eval sara=mvfind(roles,"a_svc_asr_repair_write"),
110       read=mvfind(roles,"a_svc_asr_repair_read"),
111       agent=mvfind(roles,"a_svc_asr_repair_agent_read"),
112       vendor=mvfind(roles,"a_svc_asr_repair_vendor_read")
113     | fields roles sara read agent vendor
114   </query>
115   <done></done>
140 </search>
141 <search id="sara_rmd_empdd">
142   <query>
143     | inputlookup rmd_employees
144     | search CUID=$env:user$ AND tier=1
145     | eval Job_Descr=if(isnull(Job_Descr)," ",Job_Descr)
146   </query>
147 </search>
148 <search id="sara_rmd_empl" base="sara_rmd_empdd"></search>
246 <search id="uberdev" base="sara_rmd_empl"></search>
259 <!--
260 End SECURITY Section.  I would have gotten away with it too if it weren't for you meddling kids!
261 -->

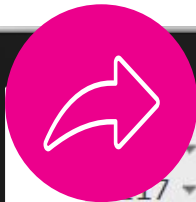
```



```


103 <!--
104 Begin SECURITY Section.  Hey you!  Get off my lawn! *****
105 -->
106 <search id="sara_rmd_aht_roles">
107   <query>
108     | rest splunk_server=local /servicesNS/-/-/authentication/users
109     | eval sara=mvfind(roles,"a_svc_asr_repair_write"),
110         read=mvfind(roles,"a_svc_asr_repair_read"),
111         agent=mvfind(roles,"a_svc_asr_repair_agent_read"),
112         vendor=mvfind(roles,"a_svc_asr_repair_vendor_read")
113     | fields roles sara read agent vendor
114   </query>
115   <done></done>
140 </search>
141 <search id="sara_rmd_empdd">
142   <query>
143     | inputlookup rmd_employees
144     | search CUID=$env:user$ AND tier=1
145     | eval Job_Descr=if(isnull(Job_Descr)," ",Job_Descr)
146   </query>
147 </search>
148 <search id="sara_rmd_empl" base="sara_rmd_empdd"></search>
246 <search id="uberdev" base="sara_rmd_empl"></search>
259 <!--
260 End SECURITY Section.  I would have gotten away with it too if it weren't for you meddling kids!
261 -->

```

```
<row depends="$KeepMeHidden$">
  <panel>
    <html>
      <style>
        #AgntRow2Pan3 {
          width: 36% !important;
          margin: auto;}
        [id^='CallDisp'] text{
          color:#FFFFFF !important;
          fill: #FFFFFF !important;
          height:60px;}
        [id^='CallDisp'] .panel-body.dashboard-element-body{
          clear:initial !important;
          height: 55px;}
        [id^='Pie'].dashboard-cell.dashboard-layout-panel .dashboard-panel{
          width:70%;
          min-width:215px !important;
          height:55px !important;
          min-height:55px !important;}
        [id^='Pie'] .shared-reportvisualizer.ui-resizable{
          height:75px !important;
          margin-bottom: -20px}
        #monthly_sup td:nth-child(n+3):nth-child(-n+5) {
          color: #1e93c6;
```

```
1 <form hideChrome="true" hideTitle="true" onunloadCancelJobs="True"  
2     stylesheet="sara_dark.css,  
3         sara_nav.css,  
4         sara_layout.css,  
5         sara_ctl.css"  
6     script="remove_timepicker_items.js,  
7         horseshoe_disable_drilldown.js,  
8         water_gauge_drilldown.js">
```



```
1 <form hideChrome="true" hideTitle="true" onunloadCancelJobs="True"  
  stylesheet="sara_dark.css,  
    sara_nav.css,  
    sara_layout.css,  
    sara_ctl.css"  
6  script="remove_timepicker_items.js,  
7    horseshoe_disable_drilldown.js,  
8    water_gauge_drilldown.js">
```



```
1 <form hideChrome="true" hideTitle="true" onunloadCancelJobs="True"
2     stylesheet="sara_dark.css,
3         sara_nav.css,
4         sara_layout.css,
5         sara_ctl.css"
        script="remove_timepicker_items.js,
            horseshoe_disable_drilldown.js,
            water_gauge_drilldown.js">
```



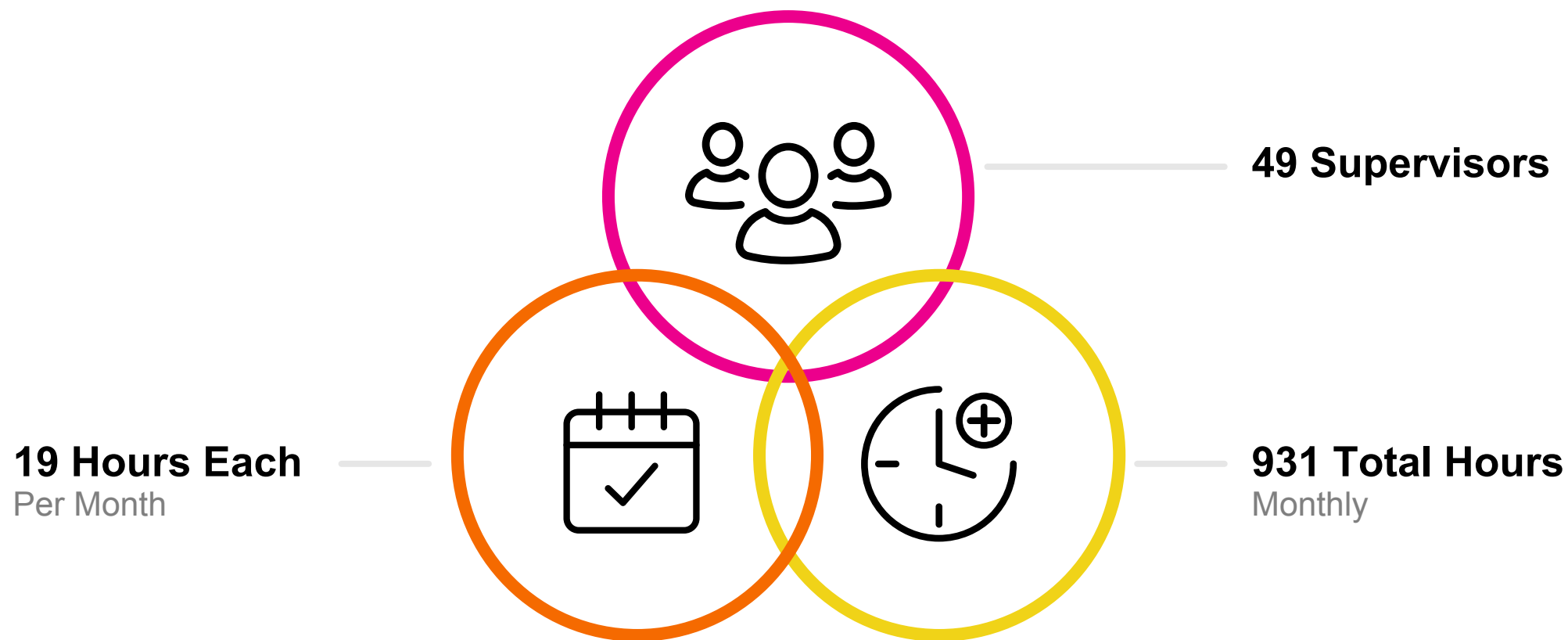
What do we get out of it?

The true benefit of the Splunk dashboard cannot be fully quantified because much of the data simply didn't exist in the old scorecard.

Benefits Realized

- Ability to quickly customize data at both a management and agent level.
- Identify trends / improvement areas which previously either wasn't available or required secondary / complex reports.
- Quick identification of individual development and center training opportunities.
- Ability for agents to see detailed metric breakdowns vs old static results.
- Enhances one on one meetings by focusing on improvement rather than results.

Adding it up



10976 Hours

Returned to our supervisors Annually!



Q&A

Jeremy Lemley | Lead Operations Analyst
Russ White | Operations Analyst II



splunk>

Thank

You



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